

CLAIMS

What is claimed is:

1           1.    A method of optimizing data throughput in a circuit  
2 switched mobile radio connection, said method comprising:

3           determining a peak number of substreams to be used for data in  
4 said mobile radio connection;

5           allocating said peak number of substreams to be used for data  
6 in said mobile radio connection;

7           monitoring a quality of a radio interface;

8           adjusting said mobile radio connection to use fewer substreams  
9 of data than said peak number of substreams if said quality of said  
10 radio interface is below a predefined level; and

11          retaining any allocated substreams that have become unused for  
12 a duration of the connection.

1           2.    The method according to claim 1, wherein said peak number  
2 of substreams are allocated on a per radio frequency timeslots  
3 basis.

1           3.    The method according to claim 1, wherein said peak number  
2 of substreams are allocated on a per connection basis.

1           4.    The method according to claim 1, wherein said peak number  
2   of substreams is determined based on a number of timeslots allotted  
3   to said mobile radio connection.

1           5.    The method according to claim 4, wherein said peak number  
2   of substreams is determined based on a user requested data rate for  
3   said mobile radio connection.

1           6.    The method according to claim 1, wherein adjusting said  
2   mobile radio connection includes changing a coding scheme thereof.

1           7.    The method according to claim 6, wherein said coding  
2   scheme is changed via in-band signaling.

1           8.    The method according to claim 6, wherein said coding  
2   scheme is changed via a combination of in-band and out-band  
3   signaling.

1           9.    The method according to claim 7, further comprising  
2   sending quality measurements of said radio interface via in-band  
3   signaling.

1           10. The method according to claim 1, wherein adjusting said  
2 mobile radio connection includes changing a modulation scheme  
3 thereof.

1           11. The method according to claim 1, wherein adjusting said  
2 mobile radio connection includes changing an allotted number of  
3 radio frequency timeslots thereof.

1           12. A mobile communication system capable of supporting a  
2 circuit switched mobile radio connection, comprising:

3           a base transceiver station;

4           a mobile services switching center; and

5           a base station controller connected to said base transceiver  
6 station and said mobile services switching center, said base  
7 station controller configured to:

8                   determine a peak number of substreams that may be  
9                   used for data in said mobile radio connection;

10                   allocate said peak number of substreams to be used  
11                   for data in said mobile radio connection;

12                   monitor a quality of a radio interface;

13                   adjust said mobile radio connection to use fewer  
14                   substreams of data than said peak number of substreams if

15           said quality of said radio interface is below a  
16           predefined level; and  
17           retaining any allocated substreams that have become  
18           unused for a duration of the connection.

1           13. The system according to claim 12, wherein said peak  
2           number of substreams are allocated on a per radio frequency  
3           timeslots basis.

1           14. The system according to claim 12, wherein said peak  
2           number of substreams are allocated on a per connection basis.

1           15. The system according to claim 12, wherein said peak  
2           number of substreams is determined based on a number of timeslots  
3           allotted to said mobile radio connection.

1           16. The system according to claim 15, wherein said peak  
2           number of substreams is determined based on a user requested data  
3           rate for said mobile radio connection.

1           17. The system according to claim 12, wherein said mobile  
2           radio connection is adjusted by changing a coding scheme thereof.

1 18. The system according to claim 17, wherein said coding  
2 scheme is changed via in-band signaling.

1 19. The system according to claim 17, wherein said coding  
2 scheme is changed via a combination of in-band and out-band  
3 signaling.

1 20. The system according to claim 18, further comprising  
2 sending quality measurements of said radio interface via in-band  
3 signaling.

1 21. The system according to claim 12, wherein said mobile  
2 radio connection is adjusted by changing a modulation scheme  
3 thereof.

1 22. The system according to claim 11, wherein said mobile  
2 radio connection is adjusted by changing an allotted number of  
3 radio frequency timeslots thereof.

1 23. A method of signaling a change in an Enhance Circuit  
2 Switched Data mobile radio connection, comprising the steps of:

3 using a standard signaling procedure to signal said change;  
4 sending information regarding said change on one or more  
5 downlink traffic channels in said standard signaling procedure; and  
6 delaying issuance of a handover signal in said standard  
7 signaling procedure until after reception of said change has been  
8 acknowledged.

1 24. The method according to claim 23, wherein said standard  
2 signaling procedure includes a Channel Mode Modify procedure.

1 25. The method according to claim 23, further comprising  
2 sending radio quality measurements reports on said one or more  
3 downlink traffic channels in said standard signaling procedure.

1 26. The method according to claim 23, further comprising  
2 sending information regarding said change on one or more uplink  
3 traffic channels in said standard signaling procedure.

1 27. An Enhance Circuit Switched Data mobile radio system,  
2 comprising:

3 a base transceiver station;

4 a mobile services switching center; and

5 a base station controller connected to said base transceiver  
6 station and said mobile services switching center, said base  
7 station controller configured to:

8 use a standard signaling procedure to signal a  
9 change in a mobile radio connection;

10 send information regarding said change on one or  
11 more downlink traffic channels in said standard signaling  
12 procedure; and

13 delay issuance of a handover signal in said standard  
14 signaling procedure until after reception of said change  
15 has been acknowledged.

1 28. The system according to claim 27, wherein said standard  
2 signaling procedure includes a Channel Mode Modify procedure.

1 29. The system according to claim 27, wherein said base  
2 station controller is further configured to send radio quality  
3 measurements reports on said one or more downlink traffic channels  
4 in said standard signaling procedure.

1 30. The system according to claim 27, wherein said base  
2 station controller is further configured to send information

3     regarding said change on one or more uplink traffic channels in  
4     said standard signaling procedure.

10321-224660